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Editorial.

POETRY AND THE HORSE.

At a time of conflict like this, when our very existence as a nation is threatened, there may appear to the casual observer little use for the idealism of the poet. Yet poetry has flourished much during periods of strife, and new poets have arisen out of the sound of the guns and the clash of arms—Byron, Shelley, Shakespeare, Moore, Tennyson, Kipling, all knew the value of instilling inspiration and enthusiasm into the warriors by appropriate verses. Poems of cheer and brave songs of hope have already emanated from men in the trenches. The truth is that poetry is almost a vital necessity in time of war, for the spirit of man soars above the actions of his body, and he craves and hungers for the call of the still small voice. The maker of laws bows before the maker of songs when the multitude goes into action. The "Marseillaise," "Rule Britannia," the songs in the American War of Independence tell us of the value of singing lips when allied to energetic bodies.

The man associated intimately with horses has always been supposed to be rather shaky from a moral point of view, but the poet has frequently seen the romance and inspiration to be gathered from a life that has not been characterized entirely by dull respectability, or serene inaction: "Turpin had his black mare and she carried him well as Fame with her loud breathing trumpet can tell."

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The practice of chivalry originated with the horse, and away down the ages we can note how man and his four-footed friend have been constantly favoured by the Muses. The value of the horse in warfare was recognised before the writing of the immortal lines:—

"A horse! a horse! my kingdom for a horse!"

Scott knew the importance of equestrianism when he wrote:—

"'Charge, Chester, charge! On, Stanley, on!'
Were the last words of Marmion."

The troopers who recently lost their horses felt that they had given up some of the charm of life when they made a mock tombstone of horseshoes and indicated that a regiment's hopes lay buried there. For on foot, how can one realise fully the spirit that "Out of brave horsemanship arise the first sparks of growing resolution, that raise the mind to noble action"? The tending, care and treatment of horses have been carried by the Allies to a high pitch in the present struggle, and when a better time comes for the use of our cavalry we have no fear as to the good account it will furnish. Here and there a trooper will call to mind familiar lines associated with men and horses. He will be buoyed up by a well-remembered stanza or couplet and go gaily into action. Such a warrior will have his day and exemplify in all its grandeur the picture of the equestrian who "grew into his seat, and to such wondrous doing brought his horse as he had been incorpsed and demi-natured with the brave beast."

Perhaps no poet has shown greater depth of feeling for a faithful steed than Adam Lindsay Gordon, the Australian Poet, who out of 56 poems that he wrote devoted no fewer than 13 to the horse. What more appropriate can be written than his tribute in the following lines to the passing of an old friend?

"All is over! This is death,
And I stand to watch thee die,
Brave old horse with bated breath,
Hardly drawn through tight-clenched teeth,
Lip indented deep, but eye only dull and dry.

"Rest, old friend, thy day though rife
With its toil hath ended soon;
We have had our share of strife,

Tumblers in the mask of life,
In the pantomime of noon
Clown and pantaloon."

Again, how the spirit of the warrior breathes and throbs in the following lines:—

" Not a bullet told upon 'Britomarte'—
Suddenly snorting, she launched along—
So the osprey dives where the seagulls dart,
So the falcon swoops where the kestrels throng;
And full in my front one pistol flashed,
And right in my path their sergeant got,
How our jack-boots jarred, how our stirrups clashed,
While the mare like a meteor past him shot;
But I clove his skull with a backstroke clean
For the glory of God and of Gwendoline."

It is a good thing this alliance of human sentiment with the life of the horse, this seeking to interpret some of his instinct and understanding.

Many brave beasts will go down when the time comes, but we shall be all the better men for thinking kindly of them.

" Baker's horse and grocer's horse and gentle carriage pair,
Hunting horse and farmer's horse, they muster in the square;
A saddle on the withers and a label on the neck—
Off to join the troopers' train and cross the transport deck.
Comrade of your toil or whim—black or brown or gray,
Take a last long look at him and let him trot away!
Shining shod on every foot, tonsured tail and mane,
Here's a horse will never step the Border roads again."

G.M.

DREAMERS.

Is there any reason for dreamers in the ranks of a scientific profession? Dreamers have always been considered unpractical men, living in the clouds, and seldom descending to mundane thoughts and affairs. The practical man has had a halo put round his head by men who do not see below the surface of things. He has unduly been set up as a paragon of professional virtue to copy and follow. Busy in carrying out the thoughts and aspirations of men who have inquired, idealised and constructed—bigger beings than he will ever be—he passes through life doing

profitable work that never rises above a certain level, and never travels beyond certain circumscribed and well-defined limits. The expert has his weak side. He is bound down to efficiency in a well-cultivated area, his horizon is never far off, and he neither tries to peer into another land full of interest and profit, nor seeks to carry his mind and spirit towards the elucidation of a better way.

In the art and science of war, the Germans have studied in a narrow cast-iron groove. They have been slaves to the producing of machines for men, and to the making of men into machines. Their lack of the spiritual dreaming faculty has caused them never to understand the art of colonisation, nor to comprehend the point of view of the natives of a country they have tried to annex. There is something to be said in favour of the freshness which the amateur brings to bear on the professional view of things. A once well-organised and well-equipped nation in martial matters is getting stale now, and the freshness and force of the previous amateurs is carrying them on to the smashing up of the army of experts with its exact and square armaments and defences. Broad views, visualisation, and idealism are finding the weak spots in the armour of the machine-like self-contained and self-centred Bully. Instead of playing the enemy's game, we are profitably adding some play of our own to the regular rules, and the extra play has been possible through the carrying out of the dreams of dreamers. Science is always moving on, but unless its vision is broad it never advances as far as it is capable of doing.

In medical science the dreamers have brought about the greatest progress. It is true that they dreamed and then worked on the ideas originated by their dreams. They were not always and at all times dreamers, but they possessed the faculty of dreaming.

Pasteur, Metchnikoff, Lister, Simpson, Dalton, Newton, Roscoe, Schmidt (the Dane), Dunlop, and a few others were dreamers in their special spheres. They got out of the common rut and the ordinary groove, and became the "architects of greatness," and produced the things that live on. There is room in our profession for some profitable dreaming, and no doubt in future years we shall turn a less favourable eye on the much-belauded practical man, and welcome and bless a dreamer here and there. The dreamers "dare uncharted seas, for they are the makers of the charts."

G.M.

Selected Article.

SAFEGUARDING NATURE'S MOST VALUABLE FOOD—MILK.

Prepared for the New York Milk Committee

By CHARLES E. NORTH, M.D.

The Food Value of Milk.

The estimate of the food value of milk must be based not only on the several substances which it contains, such as sugar, fat, casein, albumin, and salt, but on its digestibility and its peculiar usefulness in feeding the young. The price paid for cow's milk is very small compared with the price paid for other animal products having equal food value.

One Quart of Milk is Equal in Value to:

¾ lb. lean beef	... ...	at 20c	—15c
8 eggs	... ...	,, 36c doz.	—24c
3 lbs. fresh codfish	... ...	,, 12c	—36c
2 lbs. chicken	... ...	,, 20c	—40c
1 pt. oysters	... ...	,, 20c	—20c
4/5 lb. loin of pork	... ...	,, 15c	—12c
3/5 lb. ham	... ...	,, 20c	—12c
		AVERAGE—	22c

It can be seen from the above tabulation that when the consumer pays eight or nine cents for a quart of milk he is getting an amount of food for which he would have to pay an average price of twenty-two cents if his money were spent on beef, chicken, oysters, eggs or pork. Milk at eight or nine cents a quart is, therefore, a real bargain.

The Milk Industry.

Among the products of the soil corn comes first, then beef, then milk. Agriculture depends for the best use of its roughage and for soil fertility on the dairy cow more than on anything else. Dairying is often said to be "the backbone" of agriculture.

Every day the people of the United States use thirty million quarts of milk, as milk and cream, in addition to condensed milk, butter and cheese. Four million dairy cows are milked each

day to produce this. New York City alone uses two million quarts of milk daily, from forty thousand dairy farms scattered throughout seven states. This milk is gathered at twelve hundred shipping stations and comes to the city on eleven different railroads.

The milk industry is one of the giant industries. It is close to the pocketbook of practically every farmer and close to the health of every consumer.

Clean Milk.

Decency distinguishes humans from animals.

Decency adds pleasure and appetite to food.

Cleanliness contributes most to decency.

Milk may be safe because it is boiled, but may be indecent because it is filthy.

A little calf can run into any cow stable and take its dinner from a cow and run out again with certified milk in its little stomach. Nature has protected the calf against dirty barns and other sources of milk contamination by a method of milk delivery that prevents such contaminations from occurring. The dairy farmer can imitate the calf by using a milking pail with a small mouth which prevents dust and dirt in the barn from dropping into the milk during milking time.

A clean dairyman can produce clean milk anywhere. A small-mouthed pail to keep out dirt; plenty of boiling water to keep pails and cans sterile; a tank of ice water to keep milk cold; these three things alone will produce wonderfully clean milk on any dairy farm. Where there is no ice, milk can be delivered twice daily to a station where ice is available.

One grain of stable dirt has been found to contain 32,875,000 bacteria. Bacteria are tiny plants. Dirty milk contains millions of them. Clean milk contains only a few hundreds or a few thousands. The millions of bacteria in dirty milk inflame the intestines of children.

Clean milk should not be dumped into the same tank with dirty milk. The clean dairy farmer should receive more money for his product than the dirty dairy farmer. Milk dealers in several cities have already established clean milk stations in the country where payment to the producer is based on the cleanliness of the milk. In addition to the regular market price of the

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stations, premiums are paid not only for butter-fat but for milk containing small numbers of bacteria.

Clean milk is winning its fight and dirty milk is losing ground every day.

Clean people buy clean milk.

Clarification.

Definition.—Clarification means centrifugally cleansing milk of the udder waste, foreign and impure matter it may contain, without affecting its butter-fat or other normal constituents.

At the present time most market milk is dirty, being contaminated with foreign matters consisting of particles of dust, dirt, hay, cow-feed, cow-bedding, cow-manure, hairs, dandruff, insects, etc., etc. Some of these float on the surface, others settle to the bottom as sediment.

The dairy cow herself contributes a peculiar form of contamination. The udder is constructed like a sponge. There is a constant shedding of waste tissue from the lining of the udder. This udder waste often includes the products of udder inflammation. Such inflammations are so common they are present in some form in practically every dairy herd. Even when there is no external evidence there is often internal inflammation discharging its products with the milk.

Udder waste and blood, pus and bacteria from udder inflammations are fortunately heavier than milk. Most of the foreign dirt is also heavier than milk. Consequently when milk is passed through a clarifier these things are all thrown out by the proper application of centrifugal force so that they remain in the machine as a slimy mass which is called "clarifier slime." The amount of such slime removed from milk is about one pound to every six thousand quarts (which would equal for New York City's milk supply 333 pounds daily or over one ton per week). An inspection of the dark and blood-streaked slimy mass instantly convinces the observer that market milk is rendered much more sanitary by its removal.

Clarification adds to the safety of raw milk because along with blood, pus and waste tissue it removes large numbers of the bacteria which cause udder inflammation. Such bacteria may inflame the throats of adults or the intestines of infants.

Clarification adds to the decency of all milk, raw or pasteurized, because it cleanses milk of all gross impurities.

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Pasteurization.

Definition.—Pasteurization consists in heating milk to such a temperature for such a length of time as will destroy the most bacteria with the least damage to the milk itself.

Temperature.—The substances composing milk are damaged at temperatures higher than those temperatures at which disease bacteria found in milk are killed. The space between, called the "neutral zone," permits selections of a number of good temperatures and periods for pasteurizing milk without affecting its food value, but with a guarantee that the bacteria of disease will be destroyed. In practice 145 deg. F. for 30 minutes has been agreed upon as best by most authorities.

Why Milk Should be Pasteurized.

A. Raw Milk Causes Infant Deaths.

Twenty-five per cent. of all deaths are of children under five years of age.

More children die from intestinal disease than from other causes. Children's food is chiefly milk.

Dirt bacteria, harmless to adults, irritate and inflame the intestines of children.

Pasteurization kills 99 per cent. of the bacteria in milk.

B. Raw Milk Causes Septic Sore Throat.

Septic sore throat is a violent form of tonsilitis.

It is often followed by acute articular rheumatism, erysipelas, peritonitis, endocarditis and other serious inflammations.

Boston, Mass.	1,043	cases	from	one	raw	milk	supply.
Boston, Mass.	227	,,	,,	,,	,,	,,	,,
Chicago, Ill.	10,000	,,	,,	,,	,,	,,	,,
Baltimore, Md.	602	,,	,,	,,	,,	,,	,,
Cortland-Homer, N.Y.	669	,,	,,	,,	,,	,,	,,

The disease attacks adults chiefly. There are often deaths.

Bacteria in sore udders of cows closely resemble bacteria found in these sore throats.

Pasteurization kills the bacteria producing septic sore throat.

C. Raw Milk Causes Typhoid Fever.

Trask has collected records of 317 outbreaks of typhoid traced to raw milk. Here are a few:—

Glasgow, Scotland	500	cases from one raw milk supply.
Cologne, Germany	270	,, ,, ,, ,, ,, ,,
Port Jervis, N.Y.	59	,, ,, ,, ,, ,, ,,
Springfield, Mass.	182	,, ,, ,, ,, ,, ,,
Oakland, Cal.	262	,, ,, ,, ,, ,, ,,
Montclair, N.J.	107	,, ,, ,, ,, ,, ,,
Stamford, Conn.	307	,, ,, ,, ,, ,, ,,

Pasteurization entirely destroys the germs of typhoid.

D. Raw Milk Causes Tuberculosis.

One hundred and ninety-one tuberculous cows were taken out of the most celebrated certified dairy herd of 632 animals in November, 1914. In December, 72 tuberculous cows were found in a herd of 86 in a model dairy where every expense and precaution had been taken.

Tuberculosis is very common and the majority of dairy herds contain tuberculous cows.

Authorities estimate that 75 to 90 per cent. of human beings have tuberculosis at some time during their lives. Most of this is human, but some of it is bovine.

Tabulation by Park and Krumweide of 1,038 cases of tuberculosis showed the following:—

	CASES	BOVINE	PER CENT.
Adults over 16 years	686	9	1.3%
Children 5 to 16 years	132	33	25 %
Children under 5 years	220	59	27 %
Total	1038	101	10 %

Pasteurization kills the bacteria causing tuberculosis.

E. Raw Milk Causes Scarlet Fever and Diphtheria.

One hundred and twenty-five epidemics of scarlet fever due to milk have been collected by Trask. A few examples are as follows:—

Scarlet Fever.

Buffalo, N.Y.	57	cases from one raw milk supply.
Washington, D.C.	33	,, ,, ,, ,, ,, ,,
London, Eng.	284	,, ,, ,, ,, ,, ,,
Beverly, Mass.	6	,, ,, ,, ,, ,, ,,
Liverpool, Eng.	59	,, ,, ,, ,, ,, ,,
Mt. Vernon, N.Y.	45	,, ,, ,, ,, ,, ,,
Boston, Mass.	195	,, ,, ,, ,, ,, ,,

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Diphtheria.

Fifty-one epidemics collected by Trask. A few to illustrate:

Brookline, Mass.	12	cases	from	one	raw	milk	supply.
Los Angeles, Cal.	35	,,	,,	,,	,,	,,	,,
Wellsville, N.Y.	84	,,	,,	,,	,,	,,	,,
Clifton, Ohio	36	,,	,,	,,	,,	,,	,,
Hyde Park, Mass.	69	,,	,,	,,	,,	,,	,,
Warwick, R.I.	64	,,	,,	,,	,,	,,	,,

Pasteurization entirely destroys the infections of scarlet fever and diphtheria.

NO EPIDEMIC OF DISEASE HAS EVER BEEN TRACED TO PASTEURIZED MILK.

Old Objections to Pasteurisation.

Substitute for Cleanliness.—This is only true if the public and the Health Officers allow it. Such abuse of pasteurization can be entirely controlled by testing the raw milk before it is pasteurized. All milk should first be decently clean. Grades and Standards and Regulations enforced by the Heath Officer can do this.

Affects Digestibility and Food Value.—Experimental evidence is hard to obtain. Fortunately New York City has for the past three years carried out a gigantic experiment in infant feeding at its fifty-five municipal milk depots where babies are fed the year round to the number of 18,000 daily in summer and 16,000 daily in winter. For three years all of this milk has been pasteurized. Records have shown that the babies have gained weight, have kept well, have shown no signs of rickets or scurvy and in every way give evidence that pasteurized milk is not inferior in food value or digestibility to raw milk. The death rate among infants during this period has been reduced from 125 per thousand births to 94 per thousand births, which places New York City in the lead of any large city of the world in the reduction of infant mortality.

Pasteurisation by the Milk Dealer.

Pasteurization is performed on a large scale by milk dealers through the use of several types of machinery which not only quickly heat the milk to the proper temperature, but which hold it in a heated condition for half an hour before it is run over

coolers which quickly reduce the temperature to 40 deg. Fahrenheit or lower. Attempts are now being made to pasteurize milk in the bottle and several kinds of machinery have been invented for this purpose, some of which have already been put into successful operation. Pasteurization in the bottle is the ideal method.

Pasteurization at Home.

Where pasteurized milk cannot be purchased or where for other reasons it is desirable to pasteurize milk at home, the process can be easily performed without special apparatus by gradually heating milk to 145 degrees and holding it there for one-half hour, after which it must be covered and kept cold. It is necessary to use a thermometer to be sure the milk is properly heated. Glass bottles of milk can be placed in cold water in a kettle and the water gradually heated to the right temperature. The thermometer should, of course, be placed in the milk bottle, but the temperature of the water should also be tested until the milk reaches the right temperature. A double boiler, sometimes called a rice boiler, is another way by which milk can easily be pasteurized at home.

There are also several very good types of home pasteurizers on the market which are comparatively cheap and easy to operate. The pasteurization of milk at home gives a guarantee to any householder that no disease can enter the family through the milk supply.

Certified Milk.

Certified milk is ideal in the matter of cleanliness and decency and leads all other milks in these respects. In most cases it is produced under precautions identical with those carried out in surgical operations. In the matter of cleanliness certified milk has taught the milk industry a great lesson and has been chiefly valuable because of its influence in improving sanitary conditions in the entire industry.

In the matter of safety certified milk cannot furnish a guarantee. Not only has bovine tuberculosis been constantly found present in the dairy cows of certified herds to some extent, but occasionally it has been found to a very large extent. It has been even more difficult to keep dairy cows free from udder disease. Sore udders are dangerous to the milk consumer as the cause of septic sore throat. Scarlet fever, diphtheria, and

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typhoid fever have broken out among dairy employees and have been traced to certified milk or dairies operated under similar clean conditions. The result is that public confidence in any raw milk, no matter how clean, has been shaken, and the leading milk authorities now believe that even the best raw milk is unsafe and should be pasteurized.

In the matter of cost certified milk is too expensive. The cost of operation of certified dairy farms is excessive compared with the small number of quarts of milk produced. Every quart carries a heavy tax of from five to ten cents above the normal price. It has been repeatedly demonstrated that at the same expense for sanitary supervision and under more business-like conditions thousands of quarts of milk can be produced clean and decent enough to conform to all demands at only an increase of one cent per quart in price. Much milk is now on the market at ten and eleven cents per quart which is practically as clean and decent as certified milk.

Which Milk Shall I Buy?

In selecting milk for home use from the variety of milks on the market there are three matters of chief importance to be considered. These are safety, decency, and price. In the table below are mentioned several kinds of milk sold in New York City and ordinary raw milk. The character of each is set down in the three respects mentioned, using the number of bacteria as indication of decency.

Table I.

Kinds of Milk for Sale.

MILK	SAFETY	DECENCY (BACTERIA IN RAW PRODUCT)	PRICE
Certified	Medical, Veterinary, Sanitary } Inspection	10,000	15-25c
Grade A	Pasteurized in bottles	200,000	10c
Grade A	Pasteurized in bulk, and bottled	200,000	10c
Grade B	Pasteurized in bottles	1,000,000	9c
Grade B	Pasteurized in bulk, and bottled	1,000,000	9c
Grade C	Pasteurized in bulk, and canned	Over 1,000,000	7c
Ordinary Raw Milk	Occasional Inspection	No standard	8c

Safety comes first and is more important than decency or price. If perfect milk scores 100 points, it would be fair to

allow 50 for safety and 25 each for decency and price. There are different degrees of safety and decency. The different prices also affect usefulness of milk, for low prices mean wide use, while high prices restrict usefulness. These degrees of safety, decency and price can be tabulated as follows:—

Table II. Table III. Table IV.

POINTS FOR SAFETY		POINTS FOR DECENCY		POINTS FOR PRICE	
PERFECT	50	PERFECT	25	PERFECT	25
		BACTERIA IN RAW PRODUCT			
Pasteurized in bottles	50	10,000	25	9c or less.	25
Pasteurized in bulk, and bottled	45	100,000	20	10c	20
Medical, Veterinary, Sanitary — Inspection	30	200,000	10	11c	15
		500,000	10	12c	10
Scoring farms	25	1,000,000	5	15c	5
No Inspection	0	Over 1,000,000	0	20c	0

If now we put down opposite the milks in Table I. the number of points allowed for safety, decency and price in Tables II., III. and IV., we get the following :—

Table V.

Value of Different Milks.

MILK	SAFETY SCORE	DECENCY SCORE	PRICE SCORE	TOTAL SCORE
Grade A.				
Pasteurized in bottles	50	10	20	80
Pasteurized in bulk, and bottled	45	10	20	84
Grade B.				
Pasteurized in bottles	50	5	25	80
Pasteurized in bulk, and bottled	45	5	25	75
Grade C.				
Pasteurized in bulk, and canned	45	0	25	70
Certified (raw)	30	25	5	60
Ordinary Raw Milk	0	0	25	25

From the table it appears that Grade A pasteurized milk scores 89 points and has the highest public value of all milks. This is because its safety is guaranteed by pasteurization, it is decently clean, and can be sold at a moderate price. In short, for ten cents per quart it is possible to get a milk that is decently clean and thoroughly safe. Ten cents makes it possible to pay the dairy farmer a premium for cleanliness. It also pays the

dealer for extra care in handling and in pasteurization. The cost of cleanliness and safety is only one cent added to the regular market price.

Municipal Milk Control.

No city to-day feels itself safe unless it possesses a pure water supply. Water is a public question. Where water is impure, public opinion demands that the municipal authorities take steps to remedy the evil. In like manner the milk supply is a public question and should be controlled by public authorities. The danger to the health of citizens from milk is greater in many respects than the danger from water. In taking control of the milk supply of a city or town, ideal conditions cannot be established at once, but complete control must be approached step by step as follows:—

1. *Milk Laboratory.*—First step is installation at expense of only a few hundred dollars $300-$500) for apparatus of milk laboratory to test milk for bacteria. Such tests can be made by a young man or woman at moderate salary. They give the best kind of information as to condition of milk, and show which is clean and which is dirty.

2. *Pasteurization.*—When water is impure, the public demand that it be filtered and sterilized. Over 600 cities in the United States and Canada, including New York City, Philadelphia, Jersey City, Toronto, Buffalo, etc., are now sterilizing water with chlorine. Pasteurization can be quickly applied to all milk either by the milk dealer or by the city itself. It at once protects all milk consumers against disease. For the sake of safety, it should be required and regulated by municipal ordinances.

3. Bottling.—Retail milk should be bottled under sanitary conditions and dipping of milk from retail wagons prohibited.

4. *Grades and Standards.*—The final step is the establishment of definite grades and standards for milk. These relate especially to the sanitary character of milk before pasteurization. Their object is to identify clean and dirty milk and label them so that the buyer may exercise choice. Milk grades are recommended by the Commission on Milk Standards, consisting of twenty of the leading health officers and sanitarians of the United States and Canada. Their report grades milk into three

grades, A., B and C, with bacterial standards for each. It has been endorsed by the leading national associations of health officers, physicians, veterinarians and milk dealers. It is published by the U.S. Public Health Service. The grading of milk gives official recognition to the clean milk producer. It establishes a market for clean milk and gives a market value for cleanliness.

New York City has been the first to grade its entire milk supply in this way. All bottled milk is labelled A or B. This system has already proven to the municipal authorities its superior value over all other means for controlling the milk supply.

SUMMARY.

1. Milk is Nature's most valuable food product.
2. Milk is exceeded only by corn and beef as a product of the soil.
3. Milk is damaged by dirt and bacteria. Decency demands that all milk should be clean.
4. Any clean man can produce clean milk.
5. Cleanliness has a market value and market prices should be based not only on richness in butter-fat but on sanitary character as shown by bacterial tests.
6. Clarification contributes to the decency of all milk and the safety of raw milk.
7. Pasteurization is positively necessary for all milk for the sake of safety. It is the only guarantee.
8. There are no valid objections to pasteurized milk.
9. Certified milk is clean, but offers no guarantee of safety, and is too expensive.
10. Grade A milk, pasteurized, at ten cents per quart, has the highest public value because of its safety, decency and price.
11. Municipal milk control is just as necessary as the control of water supplies. It should include:—
    (*a*) A bacteriological laboratory for testing milk.
    (*b*) Pasteurization.
    (*c*) Bottling.
    (*d*) Grades and standards.

Clinical Note.

OPEN JOINT IN THE HORSE.

By G. MAYALL, M.R.C.V.S.

On July 4th I was called to a black cart gelding that had been kicked on the outside of the off hock by another horse while out at pasture. The subject had been walked from the field where the accident happened to the stable, a distance of about 2 miles, and I examined him on arrival at the stable. Found the patient sweating profusely, blowing, and very lame on the off hind leg. There was a punctured wound on the outside of the hock joint from which blood and synovia were issuing. I had the patient put into slings, gave him a dose of physic, and supplied a bottle of 1 in 2,000 mercuric iodide solution to be injected into the wound three times daily. The next day the horse was easier, but the discharge was more profuse and the lameness no better, temperature 102° F., pulse 56. The mercuric iodide injections were continued for 4 days, but the horse did not improve. On July 9th cold water irrigation for half an hour 3 times daily, by means of a perforated india-rubber ring fixed above the hock and attached to some tubing leading to a tap, was commenced. After each irrigation the wound was injected with a solution of 1 part Lugol's solution to 4 parts of glycerine (as recommended by J. N. Frost, of Ithaca, p. 180 Veterinary Journal, April, 1915). This treatment was continued for a fortnight, at the end of which time the wound had healed and the lameness was very slight, although there was some swelling and heat in the hock joint. The horse has had the hock blistered twice since, and I see no reason why he should not be put to work again in a few weeks' time.

Translation.

TWO CASE REPORTS.

i. Births of Deformed Calves.

A cow in my practice is unfortunate enough to have given birth to several deformed fœtuses. The animal is now about 10 years old and has calved 6 times. Of these six births, two have been normal, and the young were healthy. The cow is a powerful, well-set-up one. The stall which she occupies is somewhat dark, and the animal is regularly used for draught purposes. Any abnormality cannot be established clinically. Sexual life is normal, although the animal has not always conceived at the first service. The first calf was a healthy one. The second was deformed, and caused a difficulty in delivery. The head and fore feet were bent back and could not be straightened, but as the pelvis was roomy, deliverance was effected. There was complete ankylosis of the fore and hind extremities, and the vertebræ were curved. The fœtus was as stiff and immovable as if it had been carved out of wood. The fœtus was fully developed, but only about half the size of a normal calf. It was covered with hair. The cow had gone 41 weeks in calf. There was no trace of life in the calf. There was no illness of the mother after the parturition, and milk was plentiful.

In 1910 the cow calved normally without help, and the calf was a good one. On January 8, 1912, I was again called to her, and delivered a deformed calf, the presentation being a breech one. The fœtus showed a similar condition to that in the previous case. All the joints were absolutely immovable. In the years 1913 and 1915 similar deformed calves were born.

The calves were by different bulls, so that the condition must have originated in the mother-animal.

ii. Strongylosis in Goats.

The diseases of goats are not well known; the goat is rather capable of resisting disease. In stall life this ability to resist declines so that tuberculosis is not uncommon. The intestine, however, appears to be resistant only in a minor degree. Acute fatal diarrhœa, and now and then chronic diarrhœa, are not uncommon.

XUM

In the Canton of Schaffhausen an attempt has been made to improve the race of goats by importing some good Toggenburgs. The land is suitable for grazing, and the goats are chiefly out of doors.

Two breeders have had unfortunate experiences with their herds. At the end of the summer acute diarrhœa was prevalent attacking from 80 to 90 per cent. of the younger animals. The acute form quickly killed the victims with loss of strength, emaciation and death. Chronic intestinal catarrh, followed by all the symptoms of pernicious anæmia as seen in the horse, developed. The anæmia appeared to develop as a result of the catarrh. At first I thought the cause was due to the cooked meal given to the young animals, and to them also getting a chill in the damp, wet weather, but as the catarrh could be cured and the anæmic symptoms persisted, I gave up this idea. The illness also arose in animals fed solely on milk, and housed, after being out to graze. Finally I suspected the pasture and set up a cadaver to the Veterinary Pathological Institute at Zurich, and also two ailing living animals.

The report came back from the Institute that the cause of the disease was a minute strongyle discernible with the microscope. —*Swiss Journal of Veterinary Medicine.*

G.M.

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